Natural Heritage
& Endangered Species
Program
Massachusetts Division of Fisheries & Wildlife
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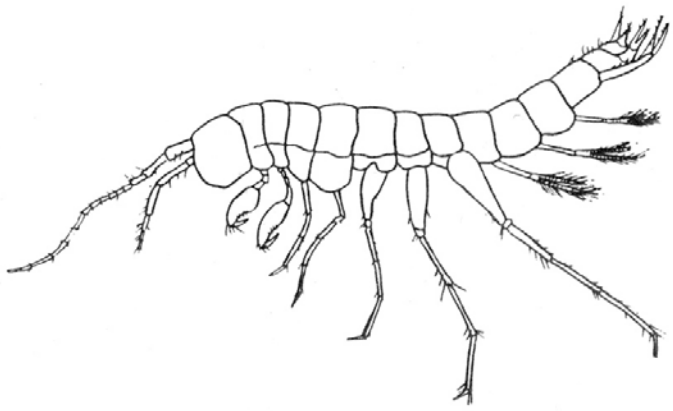
Taconic Cave Amphipod

Stygobromus borealis

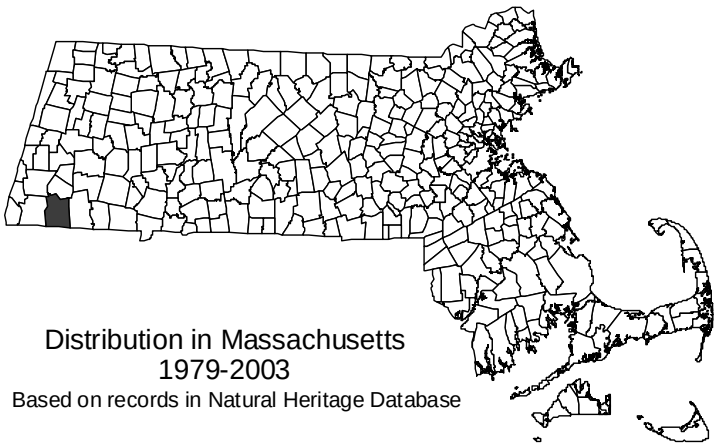
State Status: **Endangered**
Federal Status: None



Bell, R.T. 1971. Handbook of the Malacostraca of Vermont and neighboring regions (crayfish, sowbugs and their relatives). Published by author. Burlington, VT.

Description:
The Taconic Cave Amphipod is very rare and one of two known subterranean crustaceans in Massachusetts. This amphipod is a member of the family Crangonyctidae and looks like a small flat shrimp. It has no eyes and no pigment, giving it a whitish, creamy, or straw-colored appearance. The adults are approximately 3 to 4 mm in length. Males can be distinguished from females based on the characteristics of the terminal appendages (Holsinger 1978). Amphipods have a complex structure making species identification difficult without knowledge of the morphological characters of the animal.

Habitat:
The Taconic Cave Amphipod is found in the subterranean drainage systems of karst terrain in the Taconic Mountains. In Massachusetts and New York the only description of habitat has been from a springhouse in New Marlborough (Smith 1986) and Rensselaer County (Holsinger 1978), respectively. In Vermont, this species was found in a small cave of marble bedrock with a deep (probably > 9 meters) pool of water with a silt and/or sand bottom.



Distribution in Massachusetts
1979-2003
Based on records in Natural Heritage Database

Life History/Behavior:
Little is known of the life history of the Taconic Cave Amphipod. Adults are present year round and reproductive females have been found in winter, spring, and fall (Holsinger 1978).

Threats:
The potential threats to the Taconic Cave Amphipod are groundwater pollution and use. For example, springhouses where rare species have been found are often on private property and subject to owner discretion. If the spring outlets are dammed to create a pond for irrigation, livestock, or aesthetic reasons, this hydrologic alteration could be detrimental to the rare species population.

Range:
The range of this species seems to be limited. It is only known from one site in the karst terrain of the Taconic Mountains, which is scarce in Massachusetts. The Taconic Cave Amphipod has been collected from only two other sites in the northern Taconic Mountains, one in Vermont and the other in New York (Holsinger 1978). Based on the literature and habitat information collected to date it is unclear as to the extent of this species' range. The Massachusetts population is presumed to be at the southern range limit for this species (Smith 1997).

Population Status in Massachusetts:
The status of the Taconic Cave Amphipod population in Massachusetts is uncertain. The karst habitat where it is found is uncommon in Massachusetts. This amphipod is rarely encountered and is listed under the Massachusetts Endangered Species Act as Endangered. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. In addition, listed animals are specifically protected from activities that disrupt nesting, breeding, feeding, or migration. More information on the distribution and habitat requirements of this species would help in its preservation.

Similar Species:
The Taconic Cave Amphipod can be confused with the larger Piedmont Groundwater Amphipod (*Stygobromus tenuis tenuis*) that can also be found in springhouses of the southern Taconic Mountains in Massachusetts. The Piedmont Groundwater Amphipod is the only other subterranean amphipod known from Massachusetts. Both amphipods have no eyes or pigment. Identification guides sufficiently illustrate the differences among these species based on adult body length and the characteristics of spines on the appendages of the thoracic segments (Smith 2000).

References:

Bell, R.T. 1971. Handbook of the Malacostraca of Vermont and neighboring regions (crayfish, sowbugs and their relatives). Published by author. Burlington, VT. 65 pp.

Holsinger, J. R. 1978. Systematics of the subterranean amphipod genus *Stygobromus* (Crangonyctidae), Part II: Species of the eastern United States. Smithsonian Contributions to Zoology No. 266: 110-113.

Holsinger, J. R. 1967. Systematics, speciation, and distribution of the subterranean amphipod genus *Stygonectes* (Gammaridae). Bull. U.S. Nat. Mus. 259: 1-176.

Smith, D. G. 2000. Keys to the Freshwater Macroinvertebrates of southern New England. Published by author. Sunderland, MA. 243 pp.

Smith, D. G. 1997. An annotated checklist of Malacostracans (Crustacea) inhabiting southern New England fresh waters. Journal of Freshwater Ecology 12 (2): 217-223.

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